ASBMT American Society for Blood and Marrow Transplantation

The National Marrow Donor Program's Symposium on Hematopoietic Cell Transplantation in 2020: A Health Care Resource and Infrastructure Assessment

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Hematopoietic cell transplantation (HCT) is the only known curative therapy for many patients with life-threatening hematologic and oncologic diseases. It is estimated that the National Marrow Donor Program® (NMDP) will facilitate 10,000 transplants by 2015, double the current number. To better understand the existing personnel and center infrastructure for HCT in the country and to address system capacity challenges to the future growth of HCT, the NMDP convened a diverse group of stakeholders and thought leaders representing HCT physicians, physician assistants, nurse practitioners, nurses, pharmacists, other healthcare providers, HCT program directors, hospital administrators, payors, and professional organizations. Working groups were formed to identify: capacity issues because of shortages in human resources, structural constraints, and patient access barriers including diversity and healthcare disparity challenges; recommendations to address challenges; and stakeholders to engage. This report details the deliberations and recommendations of a national symposium, "Hematopoietic Cell Transplantation in 2020: A Health Care Resource and Infrastructure Assessment," held in September 2010.

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INTRODUCTION

Hematopoietic cell transplantation (HCT) is the only known curative therapy for many patients with life-threatening hematologic and oncologic diseases. Approximately 20,000 autologous and allogeneic HCT are performed in the United States each year [1]. It is anticipated that need and utilization of HCT will continue to grow in the future [2]. The National Marrow Donor Program® (NMDP) estimates that it will facilitate 10,000 transplants by 2015, double the current number. Several factors are expected to contribute to the increase in demand for HCT. These include increasing utilization of reduced-intensity conditioning regimens, increasing diversity and availability of unrelated donors and umbilical cord blood as graft sources, improvements in supportive care, and expanding indications for HCT.

The most critical system capacity barriers to the future growth of HCT in the United States involve human resources, structural constraints, and patient access barriers. Human resource constraints include a projected shortage of physicians, physician assistants,

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nurse practitioners, nurses, pharmacists, and other healthcare professionals who make up the HCT workforce [3-10]. Structural constraints include availability of adequate facilities, efficient and safe care delivery models, and the infrastructure required to meet the demand of HCT [11,12]. Key patient access barriers include availability of suitably matched donors or cord blood units, transportation and financial burdens, lack of caregiver support, and limited access to transplant-related patient information [13,14]. Capacity issues may also limit access to HCT for minorities and underserved populations. The increasing number of transplant survivors will be an added burden to the transplant centers providing care to patients undergoing transplantation as well as to the entire healthcare system. Furthermore, increasing access to transplantation for medically underserved patient populations such as low-income individuals, underinsured persons, and racial and ethnic minorities is a critical area yet to be addressed. Although data are limited, studies project a future shortage of transplant physicians and center capacity in the United States [2,3,11,12]. A future shortage of advanced practice and nursing professionals in the United States is also expected [6-10].

To better understand the existing personnel and center infrastructure for HCT in the country and to address system capacity challenges to the future growth of HCT, the NMDP organized a series of multiyear symposia to collaboratively develop creative options for complex issues affecting the delivery of HCT. Participants were comprised of key professionals, academic organizations, experts,and stakeholders. This report details the deliberations and recommendations of a national symposium, "Hematopoietic Cell Transplantation in 2020: A Health Care Resource and Infrastructure Assessment," held in September 2010.

DELIBERATIVE PROCESS

Presymposium

The NMDP convened a diverse group of stakeholders and thought leaders representing HCT physicians, physician assistants, nurse practitioners, nurses, other healthcare providers, HCT program directors, hospital administrators, payors, and professional organizations. Based on their area of expertise, each stakeholder was assigned to 1 of 6 working groups: Physician Workforce, Advanced Practice Professionals Workforce, Nursing Workforce; Care Delivery Model; Facilities/Bed Capacity; and Financial. The workgroups convened via monthly teleconferences over the 8 months before the Symposium—Year I. Each group systematically conducted an analysis of its topic area, which included identifying capacity issues including diversity and health care disparity challenges; recommendations to address challenges; potential capacity impact; stakeholders to engage; resources needed; barriers to carrying out recommendations and metrics.

By utilizing a deliberative process, the NMDP was able to effectively facilitate a well-planned national collaborative approach to address HCT system capacity challenges to the current utilization and future growth of HCT therapy.

Working Group Surveys

To verify whether the working group deliberations reflected industry perspectives, the Physician, Nursing, and Advanced Practice Professional (APP) Workforce Working Groups and the Facilities/Bed Capacity Working Group conducted informal Web surveys. Surveys were distributed to HCT physicians, nurses, advanced practice professionals, and transplant center administrators who are members of the American Society of Blood and Marrow Transplantation (ASBMT), the Oncology Nursing Society (ONS), or the NMDP network. The goal of the surveys was to: (1) ascertain perspectives on the capacity of the United States healthcare system to support the needs of HCT through the year 2020, and (2) characterize system capacity challenges that will prevent optimal utilization of HCT.

Symposium

Working Groups first prioritized their respective findings. Subsequently, their deliberations on the United States HCT system's ability to meet the rising demand of HCT therapies were presented at the NMDP-sponsored "Hematopoietic Cell Transplantation in 2020: A Health Care Resource and Infrastructure Assessment Symposium" in Chicago, IL on September 15-16, 2010. The 1.5 day meeting was attended by nearly 100 national stakeholders and thought leaders. In total, 46 academic, professional, patient advocacy organizations, and transplant centers across the United States were represented, as well as 2 government agencies (Table 1).

The goal of the Symposium—Year I was to understand the workforce and capacity challenges of the current healthcare system to enable full access to HCT therapy for all patients who are in need of this curative therapy. Presentations at the Symposium encompassed working group findings, audience polling, and dialogue. Round table discussions focused on the development of strategies to address challenges during Year II.

Challenges and Recommendations by Working Group

The challenges and prioritized recommendations made by the Working Groups are summarized in Table 2.

Table 1. Organizations, Transplant Centers and Government Agencies Represented at the Hematopoietic Cell Transplantation in 2020 Symposium—Year 1

American Society for Blood and Marrow Transplantation	National Institutes of Health
Association of Oncology Social Work	Northwestern Memorial Hospital
Association of Pediatric Oncology Social Workers	Oncology Nursing Society
Banner Health	Optum Health™
Cancer*Care*	OptumHealth Care Solutions
Cedars-Sinai Medical Center	Oregon Health and Science University
Children's Mercy Hospital	Partners HealthCare
Center for International Blood and Marrow Transplant Research	Roswell Park Cancer Institute
CIGNA LifeSOURCE Transplant Network	Seattle Cancer Care Alliance
City of Hope National Medical Center	South Texas Blood & Tissue Center
Dana-Farber Cancer Institute	St. Luke's Episcopal Hospital
Duke University Medical Center	Stanford University Medical Center
Florida Hospital	University of Alabama in Birmingham
Fred Hutchinson Cancer Research Center	University of California San Francisco
Health Interactions	University of Iowa Hospitals
Health Resources & Services Administration	University of Miami
Kaiser Permanente	University of Minnesota Medical Center, Fairview
LifeTrac Network	University of Nebraska Medical Center
Loyola University Medical Center	University of Oklahoma Health Sciences Center
Massachusetts General Hospital/North Shore Cancer Center	University of Texas, MD Anderson Cancer Center
Mayo Clinic	University of Utah
Medical College of Georgia	Washington University School of Medicine in St. Louis
H Lee Moffitt Cancer Center and Research Institute	WellPoint, Inc
National Marrow Donor Program®	Yale University/Yale-New Haven Hospital

Physician Workforce

The Physician Workforce Working Group's deliberations focused on recruitment of HCT physicians in training, retention of current HCT physicians, nonpatient care areas of academic medicine including administration, mentoring and clinical research, generational differences in how physicians view work hours and compensation, increasing workforce diversity, and physicians' influence on the care delivery model. Major barriers identified included the current and projected shortage of HCT physicians through 2020, HCT physician recruitment, and retention with a specific focus on work/life balance issues.

The Working Group emphasized the need to clearly characterize the HCT physician workforce. Currently, a comprehensive database identifying HCT physicians does not exist. The Working Group recommendations are to: create a comprehensive directory of HCT physicians and centers in the United States to establish a valid benchmark on the number of HCT physicians in the field; and conduct a census of HCT physicians to identify workforce demographics and determine the rate of departing HCT physicians each year.

The working group also recognized the need to recruit more HCT physicians. The ASBMT recently reported 2226 adult and pediatric transplant physicians would be required by the year 2020 [4]. After taking into account projected physician growth (administrative and regulatory requirements, long-term survivorship care, etc.) and retirement rates, this represents a shortage of 1358 new transplant physicians by the year 2020. These calculations did not take into account the potential for greater utilization of unrelated donors and umbilical cord blood or future new therapeutic uses of HCT.

Recruitment of physicians to the field of HCT is challenging as certification does not exist for this subspecialty. Limited effort has been made to create early awareness of HCT as a career path option for medical students and residents. Recommendations for recruiting physicians to HCT included: establish a complete directory of HCT training programs in the United States; conduct focus groups to identify barriers to HCT physician recruitment and training; develop an HCT training curriculum; assess the need for funding of HCT internship and fellowship opportunities, particularly to provide support for HCT clinical training if such training is performed outside the context of an Accreditation Council for Graduate Medical Education fellowship training program; promote teaching among HCT physicians to increase exposure to HCT for medical students and residents; and partner with medical schools, residency and fellowship programs to facilitate exposure to HCT ambulatory and hospital-based clinical training programs.

In addition to recruitment, retention of HCT physicians was also identified as a priority focus area by the working group. Work/life balance was felt to be a key retention challenge. To improve work/life balance among HCT physicians, the working group recommended: the development of a campaign to sensitize HCT administration and leadership to key factors driving job satisfaction; decreasing workload through the increased utilization of advanced practice professionals and multidisciplinary teams and the adoption of alternate practice models; increasing compensation based on established compensation benchmarks for HCT physicians; and the promotion of career development within HCT programs by providing formal mentorship to HCT physicians.

Table 2. Hematopoietic Cell Transplantation (HCT) in 2020: System Capacity Challenges and Recommendations

Identified System Challenges	Recommendations
Physician Workforce	
• Physician shortage	• Validate work effort benchmarks
– Recruitment	• Conduct transplant physician census to characterize workforce
– Retention	• Create a directory of HCT training and fellowship programs
– Work environment	• Establish a faculty membership training program
• Workforce diversity	• Develop models for part-time positions
	• Target medical schools and residency programs as part of a recruitment strategy
Advanced Practice Professional (APP) Workforce	
• Care team work models	• Better define the APP role within HCT
• APP shortage	• Increase exposure to HCT as a career path for students and practicing APPs
– Recruitment	– Develop "Blood and Marrow Transplant (BMT) 101" presentation for APP graduate programs
– Retention	• Improve quality of work life
– Work environment	– Identify ways to prevent burnout and better characterize the APP workload
• Workforce diversity	• Engage administration in exploring compensation and benefits package options to support continuing education, professional memberships, etc.
	• Establish national Physician Assistant ASBMT SIG*
	• Partner with ASBMT* to create orientation and education standards for APPs entering the field
Nursing Workforce	
• Nursing shortage	• Partner with nursing organizations to increase exposure to HCT nursing by promoting:
– Recruitment	– Student internship/externship programs
– Retention	– Successful models of career mentorship programs
– Work environment	– ONS* "Fundamentals of Blood and Marrow Transplant" Web course
• Educational needs	– Identify funding sources for HCT nurse scholarship(s) and Professional development/ continuing education
• Workforce diversity	• Explore successful models used in transplant centers and other clinical nursing areas to address:
	– Work/life balance, compassion fatigue, and moral and ethical distress
	• Increase access to transplants for minority/ethnic and medically underserved populations:
	– Collaborate with NMDP Diversity advisory group to define and develop measures
	– Recruit and retain nurses interested in and their capacity to serve underserved populations
Facilities/Bed Capacity	
• Current capacity limitations	• Collect data from transplant programs
– Inpatient, outpatient, infusion therapy, etc.	– Provide trend data on growth of transplants to support expansion initiatives
• Distribution of HCT beds in the United States	– Identify best practices to emulate
• Care delivery model impact on physical space requirements	• Partner closely with Care Delivery Model Working Group
	– Establish specific elements of care models
• Increase in patient volume	– Centers with high patient volume per bed as benchmark of efficiency and effectiveness
– Demand on patient care/support services	• Assist expansion planning by disseminating success stories, partnering with program administrators or through use of external consultants
– Shortage of temporary patient housing near the transplant center	• Create a data set of growth models
	• Help in developing measures of successful growth
Care Delivery Model	
• Late timing for referral to transplant consultation	• Work with professional medical organizations to highlight optimal transplant timing
• Insufficient HLA typing at time of diagnosis	– Use payor data
• Inadequate caregiver support	– NMDP* Network Engagement team to inquire about late referrals on site visits
• Coordination of post-transplant patient care	• Develop mechanism for patients' physicians to access patient records
• Transition to outpatient care model requires optimal workflows	• Explore models for providing posttransplant care (eg, telemedicine, satellite clinics)
	• Partner with Medicare/payors to structure reimbursement care in a variety of settings
• Effective use of Residents and Fellows on the care team	• Identify housing options near transplant center
	• Provide recommendations on staffing and design of outpatient facilities
	• Develop patient and caregiver education materials and training programs
Financial	
• Benefits vary significantly and are inadequate	• Identify an essential set of HCT benefits which includes all components of transplant
– Financial barriers for patients	• Develop a standard list of transplant codes and coding guidance
• Medicaid transplant benefits	• Review utilization management/authorization processes for potential areas to streamline procedures
– Vary significantly and inadequate in many states	– Reduce administrative delays on both sides
• Medicare coverage and reimbursement	• Plan outreach strategies to all types of payors (eg, self-funded accounts, reinsurers and health plans)
– Inadequate	– Provide tools and information for decision making
– Growing problem as patient volume increases	
• Inadequate search coverage	

*American Society for Blood and Marrow Transplant special interest group (ASBMT SIG); National Marrow Donor Program (NMDP); Oncology Nursing Society (ONS).

APP Workforce

The APP Workforce Working Group's discussions centered on increasing awareness of HCT as a career path option; continuing education needs for nurse practitioners (NP) and physician assistants (PA); practice models and professional development for APP; engagement of physicians and administration to address recruitment and retention challenges; and collaboration with professional organizations to increase the diversity of the APP workforce.

The Working Group recognized the need for developing innovative practice models that incorporate APP into the HCT care team; specific recommendations for addressing practice models were: conduct an analysis of time demand and workload among APP; increase effective utilization of support staff in the healthcare team practice model to allow APP to function at their highest level of expertise; and develop/incorporate tools to streamline administrative tasks such as documentation, writing letters of necessity, and obtaining insurance authorizations. APP face challenges regarding scope of practice. The working group recommendation is to better define the role of APP in HCT to increase efficiency of practice and care delivery models.

A future shortage of APP is also projected [6-10], which will further strain the HCT workforce. The number of NP graduates declines by 4.5% each year [8]; although there has been growth in the number of PA graduates and a call to regularly include PA in discussions on the division of medical labor, given the extent of the physician shortage, it is projected that there will not be an adequate number of PA to fill the gap [9,10]. Recruitment and retention of APP in HCT is an important component to addressing workforce shortages. Key challenges to increasing the capacity of the APP workforce include optimizing practice models, recruiting PA and NP students to the field of HCT, and retention of current APP. Recommendations for recruitment strategies to increase exposure to HCT in graduate programs included: create an introductory HCT lecture; develop and disseminate a brochure on HCT as a career option targeted to students and APP; encourage HCT centers to offer clinical rotations and mentorship programs for APP students; and identify APP champions willing to act as mentors/preceptors. Mentoring students will yield long-term results to the HCT field [15]. Improving the work environment and work/life balance are key strategies for retention of HCT APP. To address work environment challenges, the Working Group recommended: encourage the use of staffing models, which include periods of "decompression" time off and offer flexible scheduling options based on best practices; create patient acuity guidelines for ratio of patients to APP; and develop HCT orientation and education standards.

Nursing Workforce

Topic areas within scope for the Nursing Workforce Working Group centered on education for allied health professionals caring for HCT patients; recruitment and retention of nurses in general and specifically for oncology/HCT, including a specific focus on: diversity in the workforce; shortages of nursing preceptors; the nursing viewpoint of the HCT care model; the perception of transplantation among nurses; and generational differences among nursing staff regarding their approach to work.

Through Working Group deliberations, key challenges to building the capacity of the HCT nursing workforce were identified: recruitment and retention of HCT nurses; improving the work environment; meeting educational needs; and increasing workforce diversity.

As in the HCT physician and APP workforces, a future shortage of nursing professionals in the United States is expected. Studies show that the nursing shortage is projected to grow to 260,000 registered nurses by 2025 [7,8]. In addition to an increasing demand for transplant, this shortage will occur because of the aging population of practicing nurses, increasing retirement rates and difficulty in increasing enrollment rates in nursing schools. An adequate number of well-trained nurses is crucial to successful HCT outcomes, and nursing shortages will negatively impact future utilization of HCT.

To mitigate these challenges, the Working Group recommended recruitment strategies including: development of an HCT course through the ONS for basic content and providing more advanced HCT education at the BMT Tandem Meetings; encourage HCT programs to hire nursing students as technicians/assistants; promote the utilization of internship/externship programs; implement an "outreach campaign" to increase awareness of HCT as a career path option targeted to students; engage the Oncology Nursing Certification Corporation in creating an HCT Certification as a subspecialty of Oncology; and identify available funding sources for HCT nurse scholarships.

Retention challenges impact the staffing mix in regard to HCT experience and can result in less than optimal quality of healthcare delivery. The Working Group recommended the following retention-focused initiatives: explore successful models used in transplant centers and other clinical nursing areas to address work/life balance, compassion fatigue, and moral and ethical distress; educate HCT nurses and leadership on the importance of incorporating healthy living habits and support services in the work environment; identify funding sources for professional development and continuing education opportunities; and facilitate the implementation of formal mentorship programs in transplant centers.

In order to increase access to HCT for medically underserved populations, it is essential to recruit and retain nurses interested in and having the capacity to serve these communities. The Working Group will seek recommendations from the National Coalition of Ethnic and Minority Nurse Associations for improving diversity in HCT nursing workforce.

HCT nurses may find it challenging to stay abreast of advances in HCT science. Recommendations for meeting the educational needs of HCT nurses included promoting the ONS "Hot Topics" discussion forums and the NMDP "Advances in Transplantation" newsletter for nurses as well as the introductory Web-based course discussed previously. It is critical for HCT program administrators and nurse managers to support continuing education for nurses in this field.

Facilities/Bed Capacity Working Group

The Facilities/Bed Capacity Working Group confirmed that variations exist in the distribution of HCT beds across the United States. Some transplant centers are at or over capacity with their inpatient beds, outpatient clinics, and infusion beds [2]. Further research is needed to: assess regional variations in capacity; identify centers with high patient transplant volume per bed rate; further understand best practices in care delivery models; advocate for capacity expansion in underserved markets; and provide resources to transplant center administrators for educating hospital administrators about the need for expansion.

The Working Group noted that changes in care delivery models have the potential to impact center facilities and bed capacity. To better understand this impact, the Working Group recommended: identify care delivery model best practices at transplant centers with high patient transplant volume per bed rate and optimal patient outcomes; and describe the potential impact on future facility needs when innovative care delivery models are developed and implemented.

One of the consequences of increasing patient volume at transplant centers is the increased demand on all other patient care and support service areas. The Working Group suggested that centers involve all patient care and support service stakeholders in early stages of plans for expansion; thus, all facets of the program can be readied for serving more patients.

Shortage of temporary housing for patients near the transplant center is a common barrier to discharge from hospital to the outpatient clinic. Further research is needed to systematically assess when delays in inpatient discharge are attributed to lack of temporary housing availability near the transplant center. Partnering with patient housing resources such as local hotel chains in the early stages of expansion plans will ensure temporary lodging availability and minimize discharge delays.

Care Delivery Model Working Group

The Care Delivery Model Working Group's scope of work spanned from diagnosis through long-term survivorship, including topic areas of: physician referral, pretransplant evaluation, acute phase of transplant treatment model, posttransplant care, and long-term survivorship.

Key challenges to ensuring transplant candidates' ability to proceed to transplant at the most optimal time for treatment of their disease include: late referral to a transplant center; insufficient human leukocyte antigen (HLA) typing completed at time of diagnosis; and lack of available caregiver support.

To address late referral, the Working Group recommended: work with professional medical organizations (eg, American Society of Hematology, American Society of Clinical Oncology) to draw attention to the Recommended Timing for Transplant Consultation, a set of guidelines for transplant consultation developed jointly by the NMDP and the ASBMT and based upon current clinical practice and the medical literature including comprehensive evidence-based reviews [16]; and develop strategies to further engage physicians in the adoption of these guidelines.

The lack of sufficient HLA typing at diagnosis can impact patient outcomes. Recommendations to address access to HLA typing at the most optimal time in the treatment decision course included: develop a consensus on diseases where HLA typing is reimbursed when completed at time of diagnosis; draft guidelines for health plans recommending reimbursement of HLA typing at diagnosis for applicable diseases; and educate the hematologists/oncologists who refer patients for HCT on the importance of and logistics for completing typing at diagnosis.

Posttransplant patients who return to homes that are geographically far from the transplant center may be seen by local primary care physicians and emergency room departments for complications related to transplant. Suboptimal posttransplant care may occur when these local care providers encounter less than adequate access to the patient's medical records and transplant consultation services. Furthermore, transplant recipients generally represent a very small proportion of patients seen in these practices and providers may not be comfortable in caring for transplant recipients. Recommendations to enhance efficiency, expertise, and logistics of caring for patients posttransplant included the development of: patient and clinician posttransplant guidelines that can be used by transplant centers to improve communication with primary care and hematology/oncology physicians; and mechanisms for patients and treating physicians to access transplant patient health information. The Working Group also recommended leveraging patient care by coordinating care plans that have been developed independently by payors, pharmacists, and transplant physicians.

Patients do not always have the ability to assemble a sufficiently skilled caregiver team by themselves [14]. The working group recognized that a lack of adequate caregiver support can be a barrier to proceeding with

and recovery from HCT. Recommendations presented by the working group to support the HCT caregiver included: develop a caregiver education program or assess existing programs for broad adoption; identify best practices or new options for full-time nonfamily caregivers (volunteers, nursing organizations, retired persons); and open communication channels with payor representatives regarding alternative caregiver support reimbursement.

Inpatient bed needs continue to increase beyond some transplant centers' capabilities. Building efficiency, expertise, and logistics of posttransplant care for patients can allow more patients to move through a center's outpatient program. Recommendations to increase capacity in the outpatient setting included: assess best practices for transitioning patients from inpatient to outpatient care; expand outpatient service models to include posttransplant monitoring via close, temporary housing for patients/families; and seek reimbursement solutions for outpatient services.

Increased HCT patient volume will require interdependency among transplant physicians and other subspecialty professionals. For example, subspecialty professionals include but are not limited to infectious disease, radiology, pathology, internal medicine, and gastroenterology practitioners. To address these system challenges, the Working Group recommended the development of: best practices for urgent consultations with subspecialists; guidelines for inpatient and outpatient consultation procedures; and partnerships with subspecialty professionals outside of the transplant facility.

Financial Working Group

Within the initial scope of the Financial Working Group were insurance benefits, reimbursement for centers performing HCT and the unique issues presented by the various payor types. Upon further discussion and refinement of these issues, the working group identified 3 financial barriers to focus on variation in transplant insurance benefits; problems with obtaining authorization for patient treatment and/or participation in clinical trials; and the codes used to obtain reimbursement for transplant are not clear and comprehensive.

Among various payors, private or public, insurance benefits for transplant vary significantly and inadequate insurance coverage creates financial barriers for patients [13]. Recommendations to address such variation included: develop model benefit packages/guidelines and campaign for adoption among payors; support the Health Resources and Services Administration Advisory Council on Blood Stem Cell Transplantation efforts to define standard transplant coverage indications; and conduct targeted outreach to self-funded groups, medical excess loss insurers, and benefit consultants. Additionally, the Working Group recommends that the NMDP continue to monitor changes in insurance coverage that will be implemented as part of the Affordable Care Act and advocate for improved transplant benefits as part of the Essential Benefits Set.

Patients frequently face difficulty in obtaining insurance approval to undergo transplant or to participate in clinical trials [17]. To improve access to clinical trials, recommendations included: develop a standardized checklist of materials to be included with requests for coverage of clinical trial participation and approval timeline; develop a guideline for coverage based on Medicare clinical trial coverage; encourage researchers to write protocols in a way that makes it easier for payors to understand their value; and develop education for stakeholders on the importance and benefits of participation in HCT clinical trials.

All medical procedures are assigned diagnosis and procedure codes utilized to claim reimbursement from a payor. The codes associated with transplant do not adequately capture all portions of the process and their descriptions are often in need of updates or increased clarity. The Working Group proposed a comprehensive review of these codes to identify necessary changes.

IMPLICATIONS

The synthesis of Year I Symposium presentations, round table discussions, attendee polling results, and program evaluations resulted in the identification of priority areas to be addressed in the SCI Year II. These priority initiatives include recommendations to:

- Investigate strategies to increase HCT workforce recruitment, retention, and improve work/life balance across the physician, nursing, and APP workforces in the field of HCT. This aspect includes women, racial/ethnic minorities, persons with disabilities, and other individuals who have been underrepresented in science and graduate schools
- Assess the impact of current State and Federal legislation on the delivery of HCT
- Make available to hospital administrators data on the norms in HCT staffing and bed capacity across regions of the United States
- Raise awareness of the optimal timing for HCT referral
- Identify and disseminate best practices for caregiver support and education through all phases of transplant
- Develop a set of model transplant insurance benefits for payors
- Establish a Pharmacy Workforce Working Group to ensure that oncologic pharmacists specializing in HCT are engaged in meeting the expected workforce need

- Develop priorities for a combined Facilities/Bed Capacity and Care Delivery Model Working Group
- Engage stakeholder organizations essential to achieving Working Group outcomes for Year II

Areas for future HCT-related health services and health policy research were identified during Year I deliberations and include: characterization of the HCT healthcare provider workforce; validation of practice models including best practices for provider-to-patient ratios; evaluation of the impact of delays in inpatient discharge because of the lack oftemporary housing; assessment of current state and federal policies and their impact on care delivery in HCT; determination of the capacity of the HCT system to meet the future demand for transplants.

To put this research agenda into practice, we need to build collaborations with HCT focused-organizations, clinicians, and academic institutions to develop well-designed research that can be translated into improved care delivery.

HCT in 2020 Symposium—Year II

In Year II, the Working Groups will continue to meet via conference call from October 2010 through September 2011 to move forward priority initiatives. The SCI Steering Committee will continue to oversee and provide input into activities of 7 working groups. The Year II working groups were strategically modified to include: (1) Physician Workforce; (2) APP Workforce; (3) Nursing Workforce; (4) Pharmacy Workforce; (5) Facility Capacity and Care Delivery Model; (6) Financial; and (7) Diversity and Health Care Disparities. The decision was made by the SCI Steering Committee to combine the Facilities/Bed Capacity and Care Delivery Model Working Groups and incorporate 2 new Working Groups, the Diversity and Health Care Disparities and Pharmacy Workforce Working Groups. The Diversity and Health Care Disparities Working Group will develop strategies to increase access to transplant across all ethnic, racial, and socioeconomic groups for patients with appropriate indications and to improve workforce diversity. The Pharmacy Workforce Working Group will address workforce capacity, recruitment, retention issues, and educational needs of the HCT pharmacy workforce. Additionally, the CIBMTR/NMDP Health Services Research Program will follow trends in HCT utilization and capacity over time and follow metrics to monitor achievement of specific Year I Symposium recommendations.

The SCI Symposium Year II will be held September 14-15, 2011, where the expanded activities of the 7 Working Groups will be presented, findings discussed, and recommendations evaluated and prioritized. A primary product will be a report containing findings and recommendations that will act as an implementation blueprint for advancement. The SCI will continue in 2012 (Year III) to act on the final Working Group recommendations identified at the Year II Symposium.

Thus, the plan for SCI Year I was to conduct an assessment of the factors that may impact the ability of the system to achieve the goal of 10,000 HCT by 2015. The plan for Year II is to analyze data from Year I and collect data required to facilitate informed planning and implementation of recommended SCI initiatives designed to reach this goal. In Year III, we will further engage partnerships with stakeholders to foster adoption of prioritized SCI initiatives identified in Years I and II.

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